

Claims:

1. A thermal control film for use in spacecraft comprising a multi-layer interference filter adapted to exhibit preselected high absorbency and emissive characteristics in the far infrared wavelength range 2.5 μ m to 50 μ m, low absorbency characteristics in the solar spectrum range 200-2500nm and high transmissive characteristics in the microwave frequency spectrum 1 to 30GHz.
2. A thermal control film according to claim 1, where the film is free from metal.
3. A thermal control film according to claim 1, where the film covers the active face of an antenna carried by the spacecraft.
4. A thermal control film according to claims 1 to 3, wherein the film is in the form of a flexible sheet.
5. A thermal control film according to claims 1 or 2 wherein the film is in the form of a liquid coating to be applied to a surface of the spacecraft.
6. A thermal control film according to any preceding claim wherein the multi-layer interference filter is a polymeric structure.
7. A thermal control film according to any preceding claim, wherein the multi-layer interference filter comprises one or more layers of any of combination of SiO₂, SiO_xN_y, and Si₃N₄.
8. A thermal control film according to claim 7, wherein the film is in the form of a plurality of tiles.
9. A thermal control film according to any preceding claim, wherein the thickness of the film is less than 200microns.

10. A thermal control film according to any preceding claim, wherein the thickness of the film is in the range of 50 to 150 microns.
 11. An antenna comprising a thermal control film according to any preceding claim, covering the active face thereof.
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